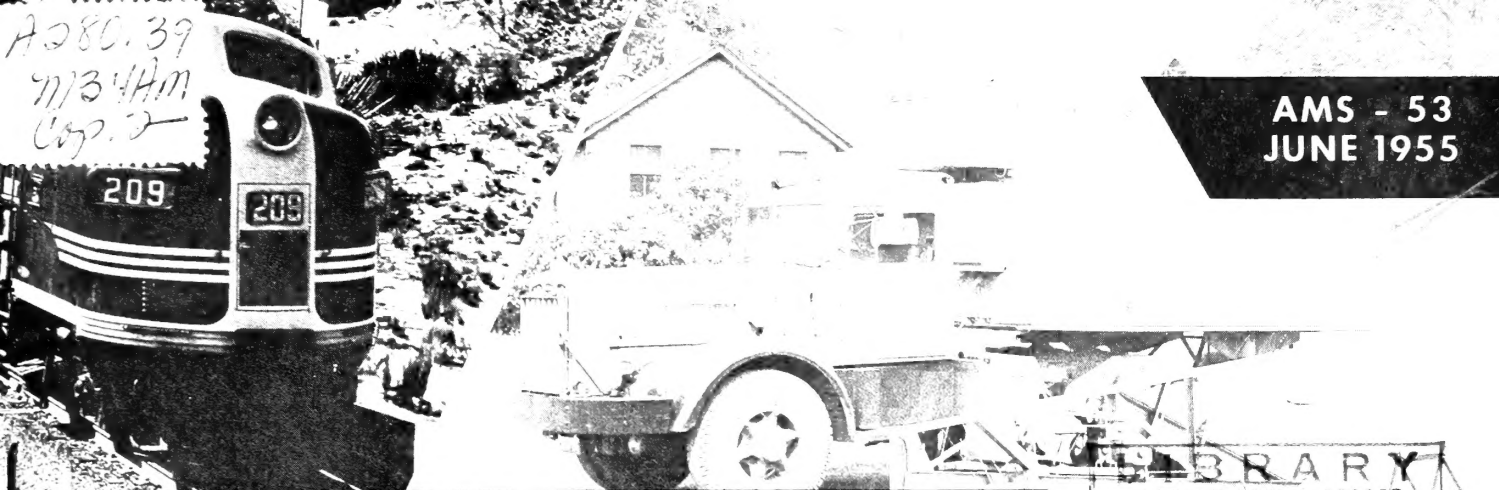


Historic, archived document

Do not assume content reflects current scientific knowledge, policies, or practices.



AMS - 53
JUNE 1955

Railroad and Truck Rates and Movements of Fresh Fruits and Vegetables From Florida



UNITED STATES DEPARTMENT OF AGRICULTURE
Agricultural Marketing Service - Washington 25, D. C.

CONTENTS

Page

Summary	iv
Introduction	1
Description of rate data	2
Railroad charges	2
Basic freight rates	2
Refrigeration charges	2
Cartage costs	3
Trucking charges	4
Period covered	7
Federal taxes not included	7
Accuracy of the rates compared	7
Rail and truck rate structures	8
Basic freight rates	8
According to commodity	8
According to market	8
Refrigeration charges	9
Railroad	9
Truck	10
Cartage costs	10
Differences in levels of rail and truck charges	11
According to commodity	11
Rail rates plus refrigeration and cartage charges vs.	
truck charges	11
Rail rates plus refrigeration charges vs. truck charges	12
According to market	13
Traffic movements	15
Completeness of unload data	15
Movements according to market	16
Movements according to commodity	16
Conclusions	18
Appendix	20

ACKNOWLEDGMENTS

The preparation of this study was aided greatly through the cooperation of a number of persons. Special acknowledgment is due to the trucking companies and brokers who furnished trucking rates. Persons both inside and outside of the U. S. Department of Agriculture were helpful with contributions of their specialized knowledge. C. D. Schoolcraft, Chief, Market News Branch, Fruit and Vegetable Division, Agricultural Marketing Service, U. S. Department of Agriculture, was especially cooperative in obtaining cartage costs at important terminal markets.

* * *

This study was conducted under the authority of the Agricultural Marketing Act of 1946 (RMA, Title II).

SUMMARY

Total costs of shipping by railroad in 1952 were generally higher than truck charges for most of the principal fresh fruits and vegetables produced in Florida. Rail shipping costs, in this report, include refrigeration charges and terminal cartage costs from railroads to wholesale houses. Truck charges also cover refrigeration and delivery to wholesalers. Total rail shipping costs were generally higher to important eastern, southern, and mid-western markets lying in the area to which the bulk of these commodities was shipped. However, to western markets (for example, Denver and important points in the Far West), trucking charges generally were substantially above total rail shipping costs.

Basic railroad freight rates on Florida fresh fruits and vegetables generally "tapered off" with distance; i.e., rates increased as distance increased, but at a decreasing progression. This was also true of railroad refrigeration charges, which, in addition, exhibited a considerable amount of "blanketing," the same charges applying to groups of markets. Truck charges generally increased rather closely in proportion with distance. For most commodities, rail charges (including refrigeration and either including or excluding cartage costs) were above truck charges to the relatively close markets. The spread of rail above truck charges narrowed at the more distant markets, until rail charges became lower than truck charges. The margins of rail below truck charges increased at the markets farther away.

Railroads and trucks also differed as to the share of the traffic they handled, these shares varying according to commodity and market. Among the commodities analyzed here, the percentage of total unloads handled by rail from Florida to principal markets in 1952 ranged from 33 percent for snap beans to 83 percent for celery. Generally, rail transport was relatively less important to nearer markets than to more distant ones. Atlanta received most of its supplies of fresh Florida fruits and vegetables by truck. On the other hand, most of the shipments to Portland, Oreg., and Seattle, Wash., were by rail.

In the division of traffic between railroads and trucks, the importance of distance stemmed in great measure from the relative level of rail and of truck charges. In general, the markets to which railroad charges were high in comparison with truck rates received a smaller proportion of their Florida fruits and vegetables by rail than those markets to which railroad rates were relatively low. But the lower the railroad rates were, in comparison with truck rates, the bigger the share of the traffic that was hauled by rail.

There were some exceptions to the foregoing statements. For example, for-hire truck charges to Los Angeles and San Francisco were much higher than rail charges plus cartage costs, yet trucks hauled the bulk of the Florida shipments to those cities. Such exceptions could probably be explained in part by nonrate factors, such as faster service. Another factor was that (because of the utilization of private trucks with return loads by shippers or receivers) the actual costs of shipping by truck were in many cases considerably less than for-hire truck charges.

RAILROAD AND TRUCK RATES AND MOVEMENTS OF FRESH FRUITS
AND VEGETABLES FROM FLORIDA

by Ezekiel Limmer
Transportation and Facilities Branch
Marketing Research Division
Agricultural Marketing Service

INTRODUCTION

The sharp reduction in the share of the traffic hauled by the railroads has been one of the principal changes in the marketing of fresh fruits and vegetables in the past 30 years. Numerous studies have shown that much of the tonnage has been diverted to motortrucks. 1/ Almost from the beginning of this development, the question has been raised as to why the diversion from railroads to trucks has occurred. Many reasons have been advanced, generally based on the opinions of shippers and receivers of freight. 2/ Although faster and more flexible service by trucks is sometimes indicated as the chief reason, lower transportation costs for highway transportation are always reported as an important influence.

This report contains a comparison of truck and rail rates in 1952 for 8 important fruits and vegetables shipped from Florida to 18 leading markets. 3/

1/ Recent studies by the U. S. Department of Agriculture include: Trucks Haul Increased Share of Fruit and Vegetable Traffic, by Church, Donald E., and Snitzler, James R., April 1953, and Transportation of Selected Agricultural Commodities to Leading Markets by Rail and Motortruck, 1939-50, by Limmer, Ezekiel, June 1951.

2/ See for example, the following publications of the U. S. Department of Agriculture: Transportation of Apples in the Appalachian Belt, 1952-53, by Snitzler, James R., August 1954; Transportation and Handling of Grain by Motortruck in the Southwest, by Hudson, William J., and Henschen, Earl K., May 1952; Commercial Trucking of Fruits and Vegetables in Nine Atlantic Coast States, by Fosselberg, Neptune, and Mumford, Herbert W., Jr., September 1937; and Use of Motortrucks in Marketing Fruits and Vegetables, by Rasmussen, Marius, September 1937.

3/ The commodities are beans (snap), cabbage, celery, corn (green), grapefruit, oranges, potatoes, and tomatoes. These were the principal fresh fruits and vegetables shipped from Florida for which truck rates were available. These commodities include all fresh fruits and vegetables with shipments of at least 7,000 carlot equivalents from Florida in 1952, with one exception. The exception was watermelons, for which truck rates could not be obtained. As a group, these commodities accounted for over three-fourths of the total shipments of fresh fruits and vegetables from Florida in 1952.

The markets analyzed are the following: Atlanta, Baltimore, Boston, Chicago, Cleveland, Dallas, Denver, Detroit, Los Angeles, New Orleans, New York City, Oakland, Philadelphia, Portland, Oreg., St. Louis, San Francisco, Seattle, and Washington, D. C. These were all the markets for which statistics of both rail and truck unloads were available for the foregoing commodities in 1952. Shipments of these commodities to these markets as a group accounted for 44 percent of the total shipments of such commodities from Florida in that year. The data on Oakland unloads were combined with those for San Francisco, as rail and truck rates to the two markets are identical.

The foregoing statistics as to volume of shipments are based upon data obtained by the Market News Branch, Fruit and Vegetable Division, AMS.

This comparison considers not only basic freight rates, but also refrigeration charges and costs of cartage from the railroads to the warehouses of wholesale receivers. In addition, an analysis of the structure of both rail and truck rates has been made. A tabulation of the volume of movement of the foregoing commodities from Florida to major markets is also presented.

DESCRIPTION OF RATE DATA

Railroad Charges

Basic Freight Rates

The principal cost of shipping by railroad is the basic freight rate. The rates used in this study were the lowest charges available for carload lots. Carload lots involve minimum weights varying among commodities and areas. The rates were obtained from published tariffs.

Refrigeration Charges

Fruits and vegetables, as well as certain other commodities, frequently require protective services--refrigeration or heating in transit. ^{4/} In the case of the movements analyzed in this survey, consisting of shipments from Florida, refrigeration is the service required. Various types of refrigeration service are offered by the railroads, at varying charges, depending chiefly upon the cost to the carriers. For example, "standard" refrigeration calls for initial icing in bunkers plus reicing to capacity at all regular icing stations, over the route of travel, which are located approximately 24 hours running time apart. Rule 240 of the Perishable Protective Tariff calls for initial icing in bunkers, but without reicing. Rule 243 calls for initial top or body icing; that is, ice on top of the packages in the body of cars instead of in the bunkers of the cars. Ventilation is the manipulation of hatch covers and plugs of cars to permit or prevent the passage of air; no ice is furnished. The charges for protective services were obtained from published tariffs.

The type of refrigeration service used differs according to commodity, season of the year, length of haul, etc. For example, tomatoes are generally shipped green and require relatively little refrigeration, frequently only initial icing. Sweet corn requires much more refrigeration, generally standard refrigeration plus top icing. Florida potatoes typically require only ventilation, for which there is no charge.

Less icing is required during cooler weather than in summer. Shorter hauls of some commodities may get by with initial icing only, while longer hauls of the same commodities may require reicing en route. If a freight car is not unloaded promptly at destination, additional ice may be necessary. The condition of the commodities is also a factor; fruits and vegetables which are riper than usual may require more refrigeration, while commodities less ripe than usual may require less than the customary refrigeration.

^{4/} The costs of loading and unloading freight cars must also be borne by shippers and consignees. These costs are not considered in this survey because such costs must, to a large extent, also be borne by shippers and consignees if trucks are used. However, truck employees frequently aid in loading and unloading by handling the produce within the truck, or by supervising such handling.

In some cases, the price situation is also an element. If prices of the commodity are low, less refrigeration may be used by some shippers; if prices are high, more refrigeration may be considered warranted as an additional protection against deterioration of the product. The amount of refrigeration used in identical situations may sometimes differ among individual shippers; some are conservative and request more refrigeration than those others who are willing to take some risk in order to economize on their refrigeration costs.

It would be too expensive and time consuming to obtain and analyze the charges for all, or even several, of the different types of refrigeration which may be used to ship the various fruits and vegetables included in this project under all possible conditions. It was decided to obtain for each commodity analyzed in this survey the charges for the one type of refrigeration under which the bulk of the movement took place. Table 1 presents for each commodity and origin the type of refrigeration generally used and the charges for such refrigeration per car and per 100 pounds to each market in the survey. The charge per 100 pounds was derived from the charge per car and was based upon average weight per railroad car of actual shipments. These average weights are the figures used by the Market News Branch in converting truck unloads to rail carlot equivalents.

Cartage Costs

Trucking rates cover pickup at farm or packinghouse and store-door delivery service, but additional cartage costs are sometimes necessary if railroad service is used. The bulk of the shipments analyzed in this survey probably originated from packinghouse doors on rail sidings. Thus, railroads and trucks were generally on an equal basis at shipping point, rail shipments not requiring cartage. 5/

However, in all of the cities studied in the survey, except Denver, at least some of the wholesale receivers were so located that hauling from the railroads was necessary. In most cases the distance involved was short, generally less than one mile. 6/ But most of the cartage expense was in the cost of loading and unloading the trucks, which was as much for a very short haul as for a longer distance. Cartage costs were substantial and were generally avoided when trucks instead of railroads were used for over-the-road movement. 7/ In addition to the costs of hauling, there were

5/ In a minority of the cases, however, rail movements would require cartage at shipping points to rail sidings.

6/ See William C. Crow, Wholesale Markets for Fruits and Vegetables in 40 Cities, U. S. Department of Agriculture, Circular No. 463, Feb. 1938.

7/ In a number of markets, produce in incoming trucks also is subject to costs which are not borne by rail receipts. Some labor contracts provide that members of local unions be employed to drive incoming trucks within designated metropolitan areas. The extent to which such practices result in higher trucking costs is not known. To the extent that such higher costs actually exist, such labor practices are a counterbalancing factor increasing trucking costs.

other costs incidental to cartage; i.e., greater deterioration and spoilage of the fruits and vegetables resulting from the additional handling, added exposure to the weather, and added time in transit.

The bulk of the movement from the railroad to the chief wholesale receivers was apparently in trucks owned and operated by the receivers. However, commercial (for-hire) trucks were used to some extent in most of the markets studied. In New York, Philadelphia, and perhaps other cities, commercial truckers did a very large proportion of all the hauling from the railroads to the wholesale markets.

In measuring the cost of cartage, it was decided to use the rates charged by commercial trucking concerns where possible. One reason is that the costs of operating wholesalers' trucks were not generally available. Furthermore, wholesalers' trucks also were frequently used to effect deliveries to retailers; the costs of the movement from the railroads to the wholesalers' platforms would therefore be estimates based upon more or less arbitrary allocation of costs. Commercial trucking charges were obtained for all of the cities covered by the study except for Atlanta, Dallas, Los Angeles, and Washington, where wholesalers as a rule used their own trucks. For the latter cities, estimates of costs of wholesalers' own trucks were obtained (see table 2).

Cartage costs of both commercial and private truckers were obtained through the facilities of the Market News Branch:

Trucking Charges

The over-the-road truck rates used in this analysis applied to carriers operating trucks exempt from the rate and service regulation of the Interstate Commerce Commission. Such exempt trucks handled by far the bulk of the movement of fresh fruits and vegetables from Florida, in the opinion of traffic experts familiar with the situation.

The rates were obtained from rate sheets issued by motor carriers and truck brokers. In most cases these two sources issued identical point-to-point rates. But in a limited number of cases there were differences of 5 to 10 cents a package, in which case the lower of the two rates was used on the assumption that it would be the controlling charge in a competitive situation. Truck brokers themselves do not furnish transportation, but confine their activities to making arrangements for transportation with shippers and motor carriers.

The truck rates used here include charges for refrigeration, where that service is necessary. No minimum weights were specified in the truck tariffs. Both small and large shipments could be made at the rates quoted.

The truck rates were generally quoted on a per package basis: per bushel, per box, etc. To obtain direct comparisons with railroad rates these truck rates were converted to a per 100-pound basis. This was done by using the estimated weights per package in railroad tariffs.

Table 1.--Railroad refrigeration charges for selected fresh fruits and vegetables from Belle Glade, Florida, to major markets, 1952 1/

Market	Miles	Beans, snap		Cabbage		Celery		Corn, green		Grapefruit		Oranges		Potatoes		Tomatoes	
		Per 100 lb. car	Per 100 lb. car	Per 100 lb. car	Per 100 lb. car	Per 100 lb. car	Per 100 lb. car	Per 100 lb. car	Per 100 lb. car	Per 100 lb. car	Per 100 lb. car	Per 100 lb. car	Per 100 lb. car	Per 100 lb. car	Per 100 lb. car	Per 100 lb. car	Per 100 lb. car
		Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars
Atlanta, Ga.	608	63.48	0.29	36.71	0.13	37.37	0.15	100.19	0.40	63.48	0.14	63.48	0.13			37.37	0.15
New Orleans, La.	834	79.35	.37	39.36	.14	40.02	.16	118.70	.47	79.35	.17	79.35	.16			40.02	.18
Washington, D. C.	1,042	63.48	.29	40.02	.15	40.68	.16	103.50	.41	63.48	.14	63.48	.13			40.68	.17
Baltimore, Md.	1,091	63.48	.29	40.02	.15	40.68	.16	103.50	.41	63.48	.14	63.48	.13			40.68	.17
St. Louis, Mo.	1,169	90.60	.42	40.68	.15	41.34	.16	131.28	.53	90.60	.20	90.60	.18			41.34	.17
Philadelphia, Pa.	1,179	63.48	.29	40.02	.15	40.68	.16	103.50	.41	63.48	.14	63.48	.13	NO		40.68	.17
New York, N. Y.	1,272	63.48	.29	40.02	.15	40.68	.16	103.50	.41	63.48	.14	63.48	.13			40.68	.17
Dallas, Tex.	1,279	92.58	.43	41.34	.15	42.00	.17	133.92	.54	92.58	.20	92.58	.19	REFRIGERATION		42.00	.17
Cleveland, Ohio	1,317	90.60	.42	40.68	.15	41.34	.16	131.28	.53	90.60	.20	90.60	.18			41.34	.17
Chicago, Ill.	1,332	90.60	.42	40.68	.15	41.34	.16	131.28	.53	90.60	.20	90.60	.18	CHARGES		41.34	.17
Detroit, Mich.	1,332	90.60	.42	40.68	.15	41.34	.16	131.28	.53	90.60	.20	90.60	.18			41.34	.17
Boston, Mass.	1,499	68.77	.32	40.68	.15	41.34	.16	109.45	.44	68.77	.17	68.77	.16			41.34	.17
Denver, Colo.	1,943	112.41	.62	43.32	.16	43.99	.17	162.34	.65	112.41	.26	112.41	.22			43.99	.18
Los Angeles, Calif.	2,719	132.25	.61	46.63	.17	47.29	.19	185.49	.74	132.25	.29	132.25	.26			47.29	.19
San Francisco, Calif.	3,124	132.25	.61	47.95	.17	48.61	.19	186.81	.75	132.25	.29	132.25	.26			48.61	.20
Portland, Oreg.	3,269	138.86	.64	47.95	.17	48.61	.19	193.42	.77	138.86	.31	138.86	.28			48.61	.20
Seattle, Wash.	3,437	138.86	.64	47.95	.17	48.61	.19	193.42	.77	138.86	.31	138.86	.28			48.61	.20
Average weight per car		Pounds	Pounds	Pounds	Pounds	Pounds	Pounds	Pounds	Pounds	Pounds	Pounds	Pounds	Pounds	Pounds	Pounds	Pounds	Pounds
		21,700	27,500	25,200	25,000	45,500	50,000	30,300	24,300								

1/ The charges per car depend upon the type of refrigeration used, which varies according to commodity. The predominant types of refrigeration for the various commodities are as follows: Beans, snap--standard refrigeration; cabbage--Rule 243 (top ice 10,000 lbs.); celery--Rule 240; corn--standard refrigeration plus 10,000 lbs. top ice to all southern and eastern points in table, and additional 2,000 lbs. top ice (added at Fort Worth, Texas) for Denver and points west; tomatoes--Rule 240. For grapefruit and oranges, standard refrigeration is generally used except to New York and Boston where refrigeration is free if certain carload minimum weights are shipped, as follows: Initial icing plus one reicing are free if the minimum weight is 45,000 lbs. for grapefruit, or 48,000 lbs. for oranges; initial icing is free if the minimum is 36,000 lbs. for grapefruit or 40,000 lbs. for oranges. No icing is needed for potatoes, which require ventilation only. The charge per 100 lbs. was derived from the charge per car and was based on the average weight per railroad car of actual shipments.

2/ Includes Oakland, Calif.

Table 2.--Cartage costs for hauling selected Florida fruits and vegetables from railroads to wholesale markets within various cities, 1952 ^{1/}

Market	Beans, snap		Cabbage		Celery		Corn, green		Grapefruit		Oranges		Potatoes		Tomatoes	
	Per	Per	Per	Per	Per	Per	Per	Per	Per	Per	Per	Per	Per	Per	Per	Per
	Per bushel	Per crate	Per crate	Per crate	Per crate	Per crate	Per crate	Per crate	Per box	Per box	Per box	Per box	Per bag	Per bag	Per lug	Per lug
Atlanta, Ga. ^{2/}	14	--	14	--	14	--	14	--	14	--	14	--	14	--	14	--
Baltimore, Md.	10	29	10	18	10	17	10	20	10	11	10	10	10	12	10	28
Boston, Mass.	10	29	10	18	10	17	10	20	10	11	10	10	10	12	10	28
Chicago, Ill.	9	26	10	18	10	17	9	18	12	13	12	15	15	15	6	17
Cleveland, Ohio	6	17	6	11	6	10	6	12	8	9	8	10	10	10	5	14
Dallas, Tex. ^{3/}	5	14	6	11	6	10	6	12	8	9	8	10	10	10	5	14
Denver, Colo.	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Detroit, Mich.	10	29	10	18	12	20	10	20	12	13	12	15	15	15	8	22
Los Angeles, Calif.	5	14	5	9	5	8	5	10	10	11	10	10	10	10	5	14
New Orleans, La.	5	14	5	9	5	8	5	10	10	11	10	10	10	10	5	14
New York, N. Y. ^{4/}	12	34	17	31	13	22	17	34	16	17	16	16	20	20	10	28
Philadelphia, Pa.	10	29	15	27	15	25	15	30	20	22	20	20	20	20	10	28
Portland, Oreg.	7	20	14	25	9	15	8	17	10	10	10	11	11	11	7	19
St. Louis, Mo. ^{5/}	6	17	7	13	7	12	8	16	7	8	8	12	12	12	6	17
San Francisco, Calif.	12	34	8	15	12	19	8	16	10	11	10	12	12	12	8	21
Seattle, Wash.	6	17	8	15	10	17	10	10	10	11	10	12	12	12	6	18
Washington, D. C.	5	14	6	11	6	10	6	12	8	9	8	10	10	10	5	14

^{1/} Commercial trucking rates for all markets, except Atlanta, Dallas, Los Angeles, and Washington, D. C., for which costs of private trucks have been estimated. In Denver, all wholesale receivers are located on rail sidings. Rates per 100 pounds computed from rates per unit before rounding.

^{2/} Estimated figures according to Production and Marketing Administration, The Wholesale Markets for Fruits, Vegetables, Poultry, and Eggs in Atlanta, Georgia (Aug. 1947); cartage costs were \$30 per car of 30,000 pounds in 1947. Between 1947 and 1952 according to ICC (Statement Q-800) costs per ton of intercity carriers of property increased by 40 percent. It is estimated that cartage costs in Atlanta increased by the same percent to \$42 per car, or 14 cents per 100 pounds.

^{3/} Estimated as equal to the cartage costs for Washington, D. C., which has approximately the same wage rates for truck drivers.

^{4/} From piers.

^{5/} In March 1953 a new produce market was opened in St. Louis and since that time most receivers have been served by rail sidings. However, that was not true during the period covered by this study.

Period Covered

The transportation charges used were, to the greatest extent practicable, those prevailing in the year 1952. The basic railroad freight rates were those as of December 31, 1952. These had been in effect during the last 8 months of that year, having been generally increased on May 2, 1952.

Railroad refrigeration charges were constant during 1952. The cartage charges were those applicable during 1952 for most of the markets, although in a few cases 1953 figures were the only ones available. The truck rates were those quoted during the entire year of 1952.

Federal Taxes Not Included

The 3-percent Federal tax applicable to for-hire carriers has not been included in either truck or rail charges. Such inclusion not only would complicate the computations but would make very little difference in the comparisons. The tax applies to all services studied here, except for the costs of operating trucks owned by wholesalers.

Accuracy of the Rates Compared

Railroad rates (both the basic rates and refrigeration charges) applying to interstate movements are regulated by the Interstate Commerce Commission. According to the Interstate Commerce Act, carriers are required to collect, and shippers to pay, the published rates only. Departures from the published rates may result in punishment by fine or imprisonment, or both.

In contrast, as stated above, the over-the-road motortruck rate quotations used in this analysis are exempt from the regulation by the ICC. These rate quotations are not binding upon either carriers or shippers. Demand and supply conditions may result in rates different from those quoted. It is understood, however, from discussions with traffic experts and shippers, that departures from the rates quoted were generally not very large in 1952 and did not seriously affect comparisons made with rail rates. This was apparently due, at least in part, to the extensive use of brokers by both shippers and truckers hauling exempt commodities from Florida, which tended to have a stabilizing influence on the rates charged.

No data were obtained as to the extent to which the commercial cartage rates quoted were those actually charged. In a number of cities, for example Boston, San Francisco, Philadelphia, Portland (Oreg.) and Seattle, the cartage rates were filed with and subject to regulatory commissions; in these instances, the State public utility commissions. These rates must be followed by both carriers and shippers under penalty of law. In other cities, the cartage rates obtained were those issued by associations of local haulers or those understood to be the going rates. It is not known how closely these rates were adhered to by carriers. It is believed, however, that the departures from these rates were relatively minor. 8/

8/ William C. Crow, op. cit., page 136, indicates that in 1938 published cartage charges in most of these cities were closely adhered to by carriers. It must be remembered, moreover, that rate-cutting was even less likely in 1952, a time of prosperity, than in 1938, a depression year.

RAIL AND TRUCK RATE STRUCTURES

Basic Freight Rates

According to Commodity

The structure of truck rates for most of the fruits and vegetables analyzed in this survey differed substantially from the rail rate structure. The differences are chiefly according to commodity and market. The rail and truck charges are summarized in tables 4-11, which make up the appendix to this report.

Different truck rates were quoted on practically every type of vegetable shipped from Florida, according to the rate schedules analyzed in this study. Rates available on vegetables from the southern part of Florida to New York City ranged from \$1.20 per 100 pounds for potatoes to \$2.68 for peppers and escarole, with few vegetables having precisely the same rate.

On the other hand, railroad rates were frequently the same for a large number of vegetables. From points in southern Florida to New York City and a large number of other destinations, the same basic freight rate (excluding refrigeration) per 100 pounds applied to beets, carrots, and turnips (each with tops), Swiss chard, kohlrabi, onions, peppers, squash, tomatoes, chicory, endive, escarole, romaine, cucumbers, eggplant, and lettuce. Another rate applied to anise, beans (lima or snap), collards, okra, English peas, radishes, broccoli, mustard greens, parsley, spinach, and turnip greens.

According to Market

Railroad rates on fruits and vegetables generally followed the typical railroad pattern, "tapering off" with distance; i.e., rates increased as distance increased, but with a decreasing rate of progression (see tables 4-11). 9/ For example, the basic rail freight rate on snap beans from Belle Glade, Fla., to Atlanta, a distance by rail of 608 miles, was \$1.20 per 100 pounds. To Cleveland, a distance of 1,317 miles, over twice as far, the rate was \$1.85, or a little over 50 percent higher than the rate to Atlanta. To Denver, 1,943 miles away, over three times as far as to Atlanta, the rate was \$2.38, or about twice the Atlanta rate. Beyond Denver, the rate remained the same all the way to the West Coast, to points over 3,400 miles away.

Truck rates for most of the movements analyzed in this study increased in proportion to distance much more closely than rail rates. For example, the truck rate on snap beans from Belle Glade to Cleveland was almost twice the rate to Atlanta, while the highway distance to Cleveland was also about twice the distance to Atlanta. To Denver, the rate was 3-1/4 times as high. The rate to Seattle was over 5 times that to Atlanta, and the distance was slightly less than 5-1/2 times as great.

9/ As noted above, both rail and truck rates in the tables apply to several origins in Florida: Sanford for oranges and grapefruit, Hastings for potatoes, and Belle Glade for the remaining commodities. These are points in important producing areas for the respective commodities.

The foregoing difference in the structure of rail and truck rates is in line with the difference in the nature of their operating costs. Terminal costs are a much smaller percentage of total truck operating costs than of railroad operating costs. This is especially true for trucks such as those hauling fruits and vegetables; these typically haul truckload lots from producing areas to receivers without use of any terminal facilities of their own.

Neither rail nor truck rates followed a distance pattern completely. Rates to some markets were substantially different from what they would have been on a mileage basis of rates for the commodity in question. The rail rate structure had larger deviations from a mileage basis than the truck rate structure. A good example was the rail rates from Florida to Dallas. Dallas was 1,279 rail miles from Belle Glade and 1,124 miles from Sanford. These distances were somewhat less than to Chicago, yet the rail rates to Dallas were substantially higher than to Chicago. The Dallas rate was higher than the rate to Boston on all the fruits and vegetables studied, although Boston was roughly 176 to 220 miles farther from various Florida origins.

The rail rate structure on Florida citrus was the result of a number of rate changes to meet competitive conditions. For a number of years, because of water competition, rates to large East Coast ports, including New York and Philadelphia, were lower than to midwestern markets, as, for example, Chicago and St. Louis. In 1950, because of traffic losses by railways to trucks, rail rates to a number of these midwestern cities were reduced by varying amounts. The reductions to Chicago were greater than to Cleveland or Detroit, resulting in lower rates to Chicago than to these other cities, although the distances were approximately equal.

Truck rates also exhibited variations from a strict distance pattern. For example, the rate on vegetables from Belle Glade to St. Louis was higher than to Philadelphia by from 8 cents per 100 pounds on celery to 18 cents on cabbage, although these two markets were about the same highway distance away. On the other hand, the rates to these two cities on potatoes from Hastings, Fla., were the same. The truck rates on some vegetables from Belle Glade to New Orleans (815 miles away), were the same as to Washington, D. C. (1,070 miles) and Baltimore (1,108 miles); they were also the same to Boston (1,512 miles away) as to Detroit (1,357 miles away).

Refrigeration Charges

Railroad

As indicated above, a number of railroad refrigeration services were available. These differed substantially in charges to shippers. The tabulation below presents the charges per car for various types of refrigeration services on most Florida fresh fruits and vegetables to Philadelphia:

Standard refrigeration (initial icing plus reicing at every regular icing station)	\$63.48
Rule 240--initial icing	40.68
Rule 243--top icing with 10,000 pounds	40.02
Ventilation	No charge

Railroad refrigeration charges were widely "blanketed" (or grouped) as to commodities. Rates for any specified refrigeration service from Florida to any individual point were the same for all vegetables and citrus fruits included in this study. Since the average carload differed widely among commodities, the charge per 100 pounds also differed. Thus, the charge for standard refrigeration was the same per car for all vegetables and citrus fruits from many Florida points to Philadelphia, \$63.48 per car. However, for those commodities in this study to which standard refrigeration is generally applied, the average carloads ranged from 21,700 pounds for snap beans to 50,000 pounds for oranges. Hence, the charge per 100 pounds of product ranged from 29 cents for snap beans to 13 cents for oranges to Philadelphia.

The charges for various refrigeration services were also widely "blanketed" according to distance. For example, the charge for standard refrigeration from Belle Glade to Atlanta was \$63.48 per car, the same charge applying to points along the Atlantic Coast as far north as New York City, roughly 650 miles farther. This was the widest "blanket" among the refrigeration services analyzed here. 10/

As with basic railroad rates, refrigeration charges tapered off with distance. This was true not only for the distances included in the blankets, but also for other distances; i. e., the rate of increase in charges was typically less than that in distance. For example, the charge for standard refrigeration from Sanford to Boston (1,320 miles away) was \$68.77 per car. The charge was 8 percent higher than that to New York City, although the distance was 21 percent farther.

The railroads offered free refrigeration services to some points to meet the competition of other agencies of transport. As noted in table 1, free refrigeration (providing as much as initial icing plus one reicing, if specified minimum carloads were offered) was available on Florida oranges and grapefruit to Boston and New York.

Truck

As indicated above, the truck refrigeration charges used in this analysis were included in the basic freight rates and were not quoted separately. Consequently, no analysis of such refrigeration charges was possible.

Cartage Costs

Commercial cartage rates were frequently published in tariffs, with rates quoted for a number of different commodities, according to type of container, and sometimes varying with length of haul. For example, in Chicago, San Francisco, St. Louis, and Philadelphia, cartage charges were quoted on a zone basis. The charges used in this analysis were to that zone in which most of the wholesalers are located.

10/ The "blanket" may have extended somewhat farther north than New York City to points not considered here.

Frequently a single rate was quoted for a number of different commodities and was based on the type and size of container, regardless of the gross weight. For example, the commercial cartage charge within zone 1 of Chicago was 9 cents per bushel basket of snap beans (gross weight 35 pounds), lima beans (43 pounds), cucumbers (57 pounds), escarole (28 pounds), and peppers (28 pounds); and per crate of green corn, generally weighing 50 pounds. As a result, the charge per 100 pounds varied widely, ranging from 16 cents for cucumbers to 32 cents for escarole, lettuce, and peppers--examples of produce in bushel baskets. In Boston, the commercial charge for most commodities was 10 cents per bushel basket or hamper, 12 cents per 100-pound bag of potatoes, etc.

Substantial variation also existed among markets. The commercial charge for carting a standard box of oranges, weighing 100 pounds, ranged from 20 cents in Philadelphia and 16 cents in New York City to 8 cents in Cleveland and St. Louis. Philadelphia and New York generally had the highest commercial cartage costs among the markets analyzed here. New Orleans and Cleveland had the lowest.

The costs of carting in the dealers' own trucks in Atlanta, Dallas, Los Angeles, and Washington were estimated as lower than the charges by for-hire truckers in most other cities. At Denver, all wholesale receivers had rail sidings at their doors, and no cartage was necessary.

Differences in Levels of Rail and Truck Charges

In considering the relationships between the cost of shipping by rail and by truck, two types of comparisons are important. One comparison is between the charges made by railroads and trucks, including the charges for necessary supplementary services in transit, such as refrigeration. Another comparison would add to these carrier charges other shipper costs which differ between rail and trucks, such as terminal cartage costs which are necessary to many wholesale receivers if rail service is used, but generally avoided if trucks are used.

According to Commodity

Rail Rates Plus Refrigeration and Cartage Charges vs. Truck Charges.--
For 6 of the 8 commodities analyzed here, total costs of shipping by rail were generally higher than truck charges to important markets east of the Mississippi River and in certain Midwestern and Southern States. These markets are within the area to which by far the bulk of these commodities

was shipped from Florida. 11/ The six commodities referred to are oranges, grapefruit, string beans, green corn, potatoes, and tomatoes. For example, total rail costs of shipping oranges exceeded truck charges to all eastern, southern, and midwestern markets analyzed here, by as much as 61 cents per 100 pounds to Dallas, and by as little as 1 cent per 100 pounds to Boston. To the most important markets for Florida oranges, total costs of shipping by rail exceeded truck costs by the following amounts: New York--11 cents, Philadelphia--27 cents, Chicago--21 cents. The excess of rail over truck costs was less for New York and Boston than for other eastern, southern, or midwestern markets because certain refrigeration services were free to the former markets.

Total costs of shipping by rail (including cartage costs) were higher than truck charges to all eastern, southern, and midwestern markets for snap beans and green corn, as well as for oranges. In the case of grapefruit, potatoes and tomatoes, total costs of shipping by rail were higher than truck charges to most, but not all, eastern, southern and midwestern markets.

On the other hand, for cabbage and celery, total costs of shipping by rail were lower than truck charges to most markets. In the case of cabbage, rail costs were higher only to Atlanta and Philadelphia. For celery, rail costs were higher only to Atlanta and Dallas and were on a par with truck charges at Philadelphia.

The foregoing discussion refers to eastern, southern, and midwestern markets analyzed here. To the six western markets considered here, Denver and westward, rail costs were lower than truck charges for all commodities. There were only a few exceptions, all involving Denver. At this market, truck charges were lower than rail costs for oranges and grapefruit and were equal to each other for potatoes.

Rail Rates Plus Refrigeration Charges vs. Truck Charges.--The foregoing conclusions also apply in general if cartage costs were not added to the basic rail freight rates plus refrigeration costs. For one commodity

11/ The area for which the computation was made is as follows: The States east of the Mississippi River, the first tier of States west of the River, and Texas. All 12 markets covered by this study which are located east of Denver are within that area. In 1952, about 98 percent of the total railroad shipments of Florida oranges and grapefruit went to the States in that area--99 percent of the celery, 94 percent of the potatoes, and 98 percent of the tomatoes. These figures are based on the Carload Waybill Statistics, 1952, Statement No. 5327, published by the Interstate Commerce Commission, a sample analysis of railroad traffic movements. The only statistics of both rail and truck movements of Florida fresh fruits and vegetables are for the 18 markets analyzed in this survey. Of the total unloads at these markets of the eight major commodities studied here, 97 percent were at the 12 eastern, southern, and midwestern markets, and only 3 percent at Denver and markets farther westward.

only (tomatoes) would this change in the basis of comparison with truck charges have resulted in an opposite conclusion. If cartage costs were omitted from costs of shipping tomatoes by rail, truck charges would have been higher to most markets.

Thus, on this basis of comparison, rail charges are higher than truck charges to most of the eastern, southern and midwestern markets analyzed here for 5 of 8 important commodities: Oranges, grapefruit, snap beans, green corn, and potatoes. Truck charges were higher for cabbage, celery, and tomatoes. Of course, the excess of rail over truck costs was in every instance less than it was in the foregoing comparison when cartage costs were added to rail charges. For all commodities analyzed, there was at least one market for which an excess of rail costs (including cartage charges) over truck charges became an excess of truck over rail charges, if cartage costs were excluded.

With respect to western markets, it was, of course, true that rail charges, excluding cartage costs, were below truck charges. (Denver was an exception to this statement, also, for some commodities.) The excess of truck charges over rail costs would obviously have been higher if cartage charges had not been added to rail costs.

According to Market

As indicated above, basic railroad rates and refrigeration charges both tapered off with distance--rates increasing as distance increased but at a decreasing progression. In contrast, truck rates generally rose in direct proportion to distance. For most of the commodities analyzed here total rail charges (including refrigeration but excluding cartage costs) were generally higher than truck charges for short hauls. But, as a result of the foregoing difference in structure, rail charges were typically lower to the long-haul markets; the longer the haul, the greater the difference from truck rates. The following tabulation presents figures which show the excess of rail charges, including refrigeration charges (but not cartage costs), over truck charges for snap beans shipped from Belle Glade, Fla., to a selected number of the markets analyzed:

Market	Railway miles from Belle Glade, Fla.	Excess of rail rates plus refrigeration charges over truck charges (Cents per 100 pounds)
Atlanta	608	35
Washington, D. C.	1,042	26
Philadelphia	1,179	19
New York City	1,272	10
Detroit	1,332	-1
Boston	1,499	-4
Denver	1,943	-81
Los Angeles	2,719	-101
San Francisco	3,124	-114
Seattle	3,437	-284

These data show that the excess of rail charges, including refrigeration, over truck rates declined from 35 cents per 100 pounds at Atlanta, 608 rail miles away, to 10 cents at New York City, 1,272 miles away. At Detroit, 1,332 miles away, rail rates were 1 cent per 100 pounds below truck rates, and this spread below truck rates increased to \$2.84 at Seattle, 3,437 miles away. 12/

There was little uniformity among commodities as to the distance at which rail and truck charges were equal. For snap beans, the distance was approximately the mileage to Detroit (1,332 miles), to which rail charges, including refrigeration, were 1 cent below truck charges. For cabbage the distance was the mileage to Atlanta (608 miles), to which truck and rail charges were on a par; to all farther points, rail costs were lower than truck charges.

For several commodities analyzed here, the relationship between transportation charges and distances was somewhat erratic. For example, for green corn the excess of rail over truck rates was 1 percent--the closest approach to equality--on shipments to four different points, located at three substantially different distances from Belle Glade: New Orleans (834 miles), Philadelphia (1,179 miles), Cleveland (1,317 miles), and Chicago (1,332 miles). The excess was 5 percent on shipments to Baltimore (1,091 miles). For oranges and grapefruit the relationship between rail and truck charges was made somewhat erratic by the existence of free railroad refrigeration at New York and Boston. To markets located about the same distance from Sanford as these two cities, rail charges (including refrigeration) exceeded truck charges, while at New York and Boston, truck charges were higher, because rail refrigeration was free.

Addition of cartage costs at destination to basic rail freight rates plus refrigeration obviously raised the cost of shipping by rail to every single market at which cartage was necessary. Thus, the distance to markets

12/ The differences in the relationships between rail and truck rates were more erratic than the foregoing tabulation would indicate. For example, the excess of rail rates plus refrigeration over truck charges for most of the commodities analyzed here was generally less at Washington, D. C., than at Baltimore, although Baltimore was almost 40 highway miles farther away. The reason was that basic rail freight rates were generally less from Florida to Washington than to Baltimore, while truck charges were usually the same to both cities, in spite of the difference in distance.

At Dallas, the excess of rail over truck rates was generally relatively high. In fact, for most of the commodities analyzed, the excess of rail over truck charges was higher to Dallas (1,275 rail miles away from Belle Glade) than to any other market analyzed here, including Atlanta, which was only 608 miles away. The reason, as indicated in a preceding section, is that rail rates to Dallas were much higher than to eastern markets of comparable mileages, while truck rates to Dallas were generally on about the same level as to other markets of the same distance.

to which truck charges were lower than total costs by rail was increased for a number of commodities.

Addition of cartage costs also increased the amount of tapering off of the total costs of shipping by rail, according to distance. That is, the degree of increase in rail costs (if cartage costs were included) was lessened as the distances to markets increased. The reason was that cartage costs were not related to the length of haul, thus generally increasing the costs of rail shipments on the shorter hauls by larger percentages than the charges for the longer hauls. Consequently, addition of cartage costs generally increased the distance at which costs of shipping by rail and by truck were on a par. For example, rail charges plus cartage costs for tomatoes first dipped below truck charges (but only slightly) at Cleveland, a distance of 1,317 miles. Excluding cartage costs, rail charges for tomatoes were first lower than truck charges (but here, too, only slightly) at New Orleans, 834 miles away.

TRAFFIC MOVEMENTS

The statistics of traffic movements used in this study are "unloads" of various commodities at leading markets by State of origin. Unloads are receipts actually unloaded at markets. Data for fruits and vegetables were reported in terms of cars unloaded, with motortruck unloads converted into rail carlot equivalents. The statistics used were collected and compiled by the Market News Branch, Fruit and Vegetable Division, AMS.

In 1952, the period covered in this analysis, statistics of rail unloads were available for 100 markets in this country. Truck unloads by commodity and origin were available for only 18 of these 100 markets. The rate comparisons, where possible, were made for these 18 markets.

Completeness of Unload Data

A comment should be made regarding the completeness of the unload data. The rail unloads were compiled from daily reports of unloads furnished directly by the various railroads, which were very cooperative. As a consequence, the rail unloads were essentially complete.

Substantial quantities of oranges and grapefruit were shipped in mixed carloads, especially by rail. Based upon Market News reports, estimates were made of the volumes of oranges and grapefruit in these mixed carloads and truckloads, and these figures have been added to the volumes which moved in straight carloads and truckloads. This report's data on other commodities were limited to movement in straight carloads and straight truckloads. For these other commodities, mixed carloads and truckloads were relatively unimportant.

The truck unloads analyzed in this survey also were sufficiently accurate so that comparisons with railroad unloads are valid. The data on volume of long-haul trucking were considered to be reasonably accurate because such movement typically consisted of shipments in for-hire trucks to organized markets and large receivers. The volume of short-haul traffic was probably understated because the Market News Branch found it difficult

to collect (1) figures on direct deliveries to small retailers and (2) receipts in trucks owned by growers, chiefly from nearby sources. However, this understatement did not generally affect the comparison between truck and rail unloads in this study to a serious extent. The reason was that short-haul movements were likely to be predominantly by truck so that only a very great understatement of the truck unloads (which apparently did not occur) could affect the ratio of truck to rail unloads. For example, of all the unloads at Atlanta of Florida snap beans, cabbage, and tomatoes, not less than 98 percent were on trucks. If the actual truck unloads were twice the number reported, the actual percentage of truck unloads would be only slightly higher--99 percent.

Movements According to Market

Generally, railroads were relatively more important to distant markets than to closer markets. Only 5 percent of the total unloads at Atlanta (608 rail miles away from Belle Glade) of the 8 major Florida fruits and vegetables analyzed here were by rail in 1952 (see table 3). This percentage increased, although somewhat erratically, to markets farther away as mileage increased. The proportion by rail to Washington, D. C. (1,042 miles away) was 41 percent; to New York (1,272 miles away), 75 percent; to Boston (1,499 miles away), 89 percent; and to Seattle (3,437 miles away), 99 percent.

However, some markets did not fall into the mileage pattern indicated above. For Dallas, only 8 percent of the unloads were by rail, although the distance from Belle Glade was 1,279 miles, approximately the distance to New York City, the proportion for which is 75 percent. Washington, D. C. and Baltimore are only about 50 rail miles apart, yet Baltimore was a much more important rail market, receiving 63 percent of the selected commodities by rail as compared with 41 percent for Washington, D. C. Rail transport was more important at Detroit than distance would indicate. In 1952, 95 percent of the Florida unloads in Detroit arrived by rail, as compared with 70 percent for Chicago (the same rail mileage from Florida) and with 75 percent for New York, which was only 60 miles nearer. Los Angeles (2,719 miles away) and San Francisco (3,124 miles away) had surprisingly small percentages by rail, 20 and 33 percent, respectively.

Movements According to Commodity

There was, in addition, a wide variation in the relative importance of railroads and trucks according to commodity. Among the commodities analyzed here, the percentages transported by rail to all markets ranged from 33 percent of total shipments of snap beans to 83 percent for celery (see table 3). The percentages for oranges and grapefruit were 73 and 74 percent, respectively.

For each commodity, there was considerable variation among markets, the relative importance of railroads generally being--as noted--less for the nearer markets than for those farther away. For example, for tomatoes, the percentage of rail unloads to the total ranged from 1 percent for Atlanta to 100 percent for Portland, Oreg., and Seattle, Wash. For potatoes, the range was from 4 percent for Atlanta to 100 percent for Los Angeles,

Table 3.--Unloads by rail of selected Florida fruits and vegetables as percentage of total unloads, by market, 1952

Market	:Railway: : : : : : : : : : : :											
	:mileage: Eight	: : : : : : : : : : : :	: : : : : : : : : : : :	: : : : : : : : : : : :	: : : : : : : : : : : :	: : : : : : : : : : : :	: : : : : : : : : : : :	: : : : : : : : : : : :	: : : : : : : : : : : :	: : : : : : : : : : : :	: : : : : : : : : : : :	: : : : : : : : : : : :
	: from :commodi-: Beans,:Cabbage: Celery: Corn	: : : : : : : : : : : :	: : : : : : : : : : : :	: : : : : : : : : : : :	: : : : : : : : : : : :	: : : : : : : : : : : :	: : : : : : : : : : : :	: : : : : : : : : : : :	: : : : : : : : : : : :	: : : : : : : : : : : :	: : : : : : : : : : : :	: : : : : : : : : : : :
	: Belle : ties : snap :	: : : : : : : : : : : :	: : : : : : : : : : : :	: : : : : : : : : : : :	: : : : : : : : : : : :	: : : : : : : : : : : :	: : : : : : : : : : : :	: : : : : : : : : : : :	: : : : : : : : : : : :	: : : : : : : : : : : :	: : : : : : : : : : : :	: : : : : : : : : : : :
	: Grade :	: : : : : : : : : : : :	: : : : : : : : : : : :	: : : : : : : : : : : :	: : : : : : : : : : : :	: : : : : : : : : : : :	: : : : : : : : : : : :	: : : : : : : : : : : :	: : : : : : : : : : : :	: : : : : : : : : : : :	: : : : : : : : : : : :	: : : : : : : : : : : :
	: Miles	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
All markets		69	33	59	83	60	74	73	64	65		
Atlanta, Ga.	608	5	2	2/	9	7	10	9	4	1		
New Orleans, La.	834	22	0	0	13	12	28	33	32	3		
Washington, D. C.	1,042	41	1	42	75	28	17	52	66	32		
Baltimore, Md.	1,091	63	34	27	96	62	74	72	40	62		
St. Louis, Mo.	1,169	81	10	55	96	83	88	83	96	52		
Philadelphia, Pa.	1,179	71	25	58	82	50	80	80	53	72		
New York, N. Y.	1,272	75	40	70	79	70	83	83	63	63		
Dallas, Tex.	1,279	8	0	--	10	18	1	3	21	43		
Cleveland, Ohio	1,317	93	69	96	99	93	93	92	96	89		
Chicago, Ill.	1,332	70	45	82	89	68	65	61	96	78		
Detroit, Mich.	1,332	95	74	95	99	98	94	93	96	97		
Boston, Mass.	1,499	89	46	94	99	82	85	90	93	96		
Denver, Colo.	1,943	51	0	--	87	21	41	45	76	73		
Los Angeles, Calif.	2,719	20	5	--	--	9	2	0	100	42		
San Francisco, Calif. 2/	3,124	33	3	0	0	27	23	25	100	19		
Portland, Oreg.	3,259	96	--	--	--	--	92	100	100	100		
Seattle, Wash.	3,437	99	--	100	100	100	99	100	100	100		

1/ Includes estimated volumes in mixed carloads.

2/ Less than 0.5 of 1 percent.

3/ Includes Oakland, Calif.

Based on data gathered by the Market News Branch, Fruit and Vegetable Division, Agricultural Marketing Service

San Francisco, Portland, and Seattle. But, as noted, some markets did not fit into the mileage pattern. For example, the lowest proportions of rail unloads for oranges and grapefruit, 3 and 1 percent respectively, were at Dallas, while at Atlanta, which was almost 700 miles nearer, the rail percentage was 10 percent for each of these commodities.

CONCLUSIONS

In general, there seems to have been a high degree of relationship between (1) the relative proportions of the traffic handled by railroads and trucks at various markets and (2) the differences between rail and truck charges indicated in a preceding section. As was shown, truck rates to the nearer markets were generally lower than costs of shipping by rail, especially if cartage charges are included in the latter costs. And rail shipments were generally of lesser volume than truck shipments to these nearer markets. On the other hand, truck rates to the more distant markets were typically higher than costs of shipping by rail, and generally, rail shipments showed a greater volume than truck movements to these markets. It may be concluded that differences between rail and truck charges have been an important factor in influencing the division of traffic between railroads and trucks at the various markets.

There are some exceptions to the foregoing relationships between rail-truck rate differences and the division of traffic at various markets. For example, the rail charges to Denver, Los Angeles, and San Francisco were substantially below truck rates. Yet Los Angeles and San Francisco received the bulk of their Florida fruits and vegetables by truck and Denver received about one-half of such commodities by truck. These and other exceptions were apparently due in part to nonrate factors. Because they were not in the main line of movement of Florida shipments, cities in the Far West did not receive the direct expedited rail service enjoyed by various eastern, southern, and midwestern markets. This gave the trucks a bigger advantage in speed of service than they had at other markets. 13/

Another factor was that the actual costs of shipping by truck to the Far West apparently were in many cases considerably less than the for-hire truck rates. A substantial volume of shipments appear to have been made in private trucks having full loads in both directions. The costs of operating such trucks per 100 pounds of lading normally would be lower than the rates of for-hire carriers. Consequently, rail charges often would not be as much below the actual costs of shipping by truck (if they were at all below such costs) as appeared in the comparison with for-hire truck rates.

13/ There were additional nonrate factors of importance. For example, some wholesale markets in Baltimore, Detroit, Philadelphia, and perhaps other cities restricted the entry of trucks or barred them altogether from using certain market facilities.

The Florida shipments of fruits and vegetables to Portland, Oreg., and Seattle, Wash., were almost completely by rail. To these markets the excess of truck over rail charges was conspicuously higher than at the other far western markets studied here--Denver, Los Angeles, and San Francisco. It appears that this greater disadvantage in rates outweighed any nonrate advantages of trucks, thus bringing Portland and Seattle into line with the typical relationship of higher rates to lower volume, and vice versa.

APPENDIX

Table 4.--Beans, snap, Florida: Railroad and truck charges, per 100 pounds, and unloads at leading markets, 1952

[illegible]

1/ Truck unloads adjusted to rail carlot equivalents.

2/ Includes lima beans.

3/ Less than 0.5 percent.

4/ Includes Oakland, Calif.

Table 5.--Cabbage, Florida: Railroad and truck charges, per 100 pounds, and unloads at leading markets, 1952

Market	From Belle Glade, Florida						Unloads from the State of Florida									
	Railroad		Rate		Excess of rail over truck		Rates including refrigeration		Rail		Truck		Total		Per-	
	Mileage	Rate	Refrig-; plus if terminal; Total	Truck	Excluding	Including	Rate	Truck	Rate	Truck	Rate	Truck	Rate	Truck	Rate	Truck
			charges;refrig-;cost	rate	carriage	carriage	Rate	Per-	Rate	Per-	Rate	Per-	Rate	Per-	Rate	Per-
			charges;				centage	centage								
	Miles	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Percent	Dollars	Percent	Carlots	Carlots	Carlots	Percent		
Atlanta, Ga.	608	0.96	0.13	1.09	0.14	1.23	1.09	0	0.14	13	1	712	713	2/	0	
New Orleans, La.	834	1.23	.14	1.37	.09	1.46	1.64	-27	-18	-11	0	4	4			
Washington, D. C.	1,042	1.070	1.34	.16	1.49	.11	1.60	1.73	-34	-14	86	121	207	42		
Baltimore, Md.	1,091	1.108	1.36	.16	1.50	.18	1.68	1.73	-23	-13	137	366	503	27		
St. Louis, Mo.	1,169	1.207	1.41	.16	1.56	.13	1.69	1.91	-35	-18	24	20	44	56		
Philadelphia, Pa.	1,179	1.204	1.39	.15	1.54	.27	1.81	1.73	-19	-11	.08	5	500	358	868	68
New York, N. Y.	1,279	1.306	1.42	.15	1.57	.31	1.88	1.91	-34	-18	.03	2	879	384	1,263	70
Dallas, Tex.	1,272	1.261	1.71	.16	1.86	.11	1.97	2.00	-14	-7	.03	0	0	0		
Cleveland, Ohio	1,317	1.284	1.46	.16	1.61	.11	1.72	2.00	-39	-20	-28	14	197	8	205	96
Chicago, Ill.	1,332	1.333	1.46	.16	1.61	.18	1.79	2.00	-39	-20	-21	10	390	85	475	82
Detroit, Mich.	1,332	1.357	1.47	.15	1.62	.18	1.80	2.09	-47	-22	-29	14	308	16	324	95
Boston, Mass.	1,499	1.512	1.51	.16	1.66	.18	1.84	2.09	-43	-21	-25	12	444	29	473	94
Denver, Colo.	1,943	2.024	2.08	.16	2.24	0	2.24	3.73	-149	-40	-149	0	0	0	0	
Los Angeles, Calif.	2,719	2.697	2.08	.17	2.25	.09	2.34	3.73	-148	-40	-37	0	0	0	0	
San Francisco, Calif.	3,124	3.041	2.08	.17	2.25	.15	2.40	4.64	-259	-52	-48	0	1	1	0	
Portland, Ore.	3,259	3.329	2.08	.17	2.25	.25	2.50	5.66	-306	-56	-56	0	0	0	0	
Seattle, Wash.	3,437	3.380	2.08	.17	2.25	.15	2.40	5.65	-330	-59	-57	1	0	1	1	100

1/ Truck unloads adjusted to rail carlot equivalents.

2/ Less than 0.5 percent.

3/ Includes Oakland, Calif.

Table 7.--Corn, green, Florida: Railroad and truck charges, per 100 pounds, and unloads at leading markets, 1952

Market	From Belle Glade, Florida										Unloads from the State of Florida									
	Railroad					Truck					Excess of rail over truck					Rail as				
	Miles	Dollars	Rate	Refrig-; plus ; Terminal; Total ; Truck ; Rates including refrigeration ; Rail ; Truck ; Total ; Per- ; of total ; of unloads	Rate	Refrig-; plus ; Terminal; Total ; Truck ; Rates including refrigeration ; Rail ; Truck ; Total ; Per- ; of total ; of unloads	Rate	Refrig-; plus ; Terminal; Total ; Truck ; Rates including refrigeration ; Rail ; Truck ; Total ; Per- ; of total ; of unloads	Rate	Refrig-; plus ; Terminal; Total ; Truck ; Rates including refrigeration ; Rail ; Truck ; Total ; Per- ; of total ; of unloads	Rate	Refrig-; plus ; Terminal; Total ; Truck ; Rates including refrigeration ; Rail ; Truck ; Total ; Per- ; of total ; of unloads	Rate	Refrig-; plus ; Terminal; Total ; Truck ; Rates including refrigeration ; Rail ; Truck ; Total ; Per- ; of total ; of unloads	Rate	Refrig-; plus ; Terminal; Total ; Truck ; Rates including refrigeration ; Rail ; Truck ; Total ; Per- ; of total ; of unloads	Rate	Refrig-; plus ; Terminal; Total ; Truck ; Rates including refrigeration ; Rail ; Truck ; Total ; Per- ; of total ; of unloads	Rate	Refrig-; plus ; Terminal; Total ; Truck ; Rates including refrigeration ; Rail ; Truck ; Total ; Per- ; of total ; of unloads
	Miles	Dollars	Rate	Refrig-; plus ; Terminal; Total ; Truck ; Rates including refrigeration ; Rail ; Truck ; Total ; Per- ; of total ; of unloads	Rate	Refrig-; plus ; Terminal; Total ; Truck ; Rates including refrigeration ; Rail ; Truck ; Total ; Per- ; of total ; of unloads	Rate	Refrig-; plus ; Terminal; Total ; Truck ; Rates including refrigeration ; Rail ; Truck ; Total ; Per- ; of total ; of unloads	Rate	Refrig-; plus ; Terminal; Total ; Truck ; Rates including refrigeration ; Rail ; Truck ; Total ; Per- ; of total ; of unloads	Rate	Refrig-; plus ; Terminal; Total ; Truck ; Rates including refrigeration ; Rail ; Truck ; Total ; Per- ; of total ; of unloads	Rate	Refrig-; plus ; Terminal; Total ; Truck ; Rates including refrigeration ; Rail ; Truck ; Total ; Per- ; of total ; of unloads	Rate	Refrig-; plus ; Terminal; Total ; Truck ; Rates including refrigeration ; Rail ; Truck ; Total ; Per- ; of total ; of unloads	Rate	Refrig-; plus ; Terminal; Total ; Truck ; Rates including refrigeration ; Rail ; Truck ; Total ; Per- ; of total ; of unloads	Rate	Refrig-; plus ; Terminal; Total ; Truck ; Rates including refrigeration ; Rail ; Truck ; Total ; Per- ; of total ; of unloads
Atlanta, Ga.	608	1.20	0.40	1.60	0.14	1.74	1.20	0.40	33	0.54	45	25	337	362	7					
New Orleans, La.	834	1.35	.47	1.82	.10	1.92	1.80	.02	1	.12	7	5	38	43	12					
Washington, D. C.	1,042	1.45	.41	1.86	.12	1.98	1.80	.06	3	.18	10	41	104	145	28					
Baltimore, Md.	1,091	1.48	.41	1.89	.20	2.09	1.80	.09	5	.29	16	170	103	273	62					
St. Louis, Mo.	1,169	1.53	.53	2.06	.16	2.22	2.00	.06	3	.22	11	125	25	150	83					
Philadelphia, Pa.	1,179	1.204	1.61	1.92	.30	2.22	1.90	.02	1	.32	17	286	290	676	60					
New York, N. Y.	1,272	1.306	1.55	1.95	.34	2.30	2.00	-.04	-2	.30	15	786	335	1,121	70					
Dallas, Tex.	1,279	1.261	2.04	2.58	.12	2.70	2.10	.48	23	.60	29	3	14	17	18					
Cleveland, Ohio	1,317	1.284	1.59	2.12	.12	2.24	2.10	.02	1	.14	7	119	9	128	93					
Chicago, Ill.	1,332	1.333	1.59	2.12	.18	2.30	2.10	.02	1	.20	10	343	158	501	68					
Detroit, Mich.	1,332	1.357	1.59	2.12	.20	2.32	2.20	-.08	-4	.12	5	259	5	264	98					
Boston, Mass.	1,499	1.512	1.65	2.09	.20	2.29	2.20	-.11	-6	.09	4	232	52	284	82					
Denver, Colo.	1,943	2,024	2.38	3.03	0	3.03	3.80	-.77	-20	-.77	-20	4	15	19	21					
Los Angeles, Calif.	2,719	2,697	2.38	.74	3.12	3.22	4.10	-.96	-24	-.88	-21	10	97	107	9					
San Francisco, Calif.	3,124	3,041	2.38	.75	3.13	3.29	4.50	-1.37	-30	-1.21	-27	13	35	48	27					
Portland, Oreg.	3,259	3,329	2.38	.77	3.15	3.32	5.50	-2.35	-43	-2.18	-40	0	0	0	--					
Seattle, Wash.	3,437	3,380	2.58	.77	3.15	3.35	5.50	-2.35	-43	-2.15	-39	1	0	1	100					

1/ Truck unloads adjusted to rail carlot equivalents.

2/ Includes Oakland, Calif.

Table 9.--Oranges, Florida: Railroad and truck charges, per 100 pounds, and unloads at leading markets, 1962

Market	From Sanford, Florida										Unloads from the State of Florida 1/									
	Railroad					Excess of rail over truck					Rates including refrigeration					Rail ; Truck ; Total ; per-				
	Mileage	Rate	Rate	Rate	Rate	Truck ; Total ; cost ; rate ;	Truck ; Excluding ; Including ;	Truck ; Excluding ; Including ;	Truck ; Excluding ; Including ;	Truck ; Excluding ; Including ;	Rate ; Per- ; Rate ; Per- ;	Rate ; Per- ; Rate ; Per- ;	Rate ; Per- ; Rate ; Per- ;	Rate ; Per- ; Rate ; Per- ;	Rate ; Per- ; Rate ; Per- ;	Rate ; Per- ; Rate ; Per- ;	Rate ; Per- ; Rate ; Per- ;	Rate ; Per- ; Rate ; Per- ;	Rate ; Per- ; Rate ; Per- ;	Rate ; Per- ; Rate ; Per- ;
	Miles	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars
Atlanta, Ga.	445	0.83	0.13	0.76	0.14	0.30	0.50	0.26	0.40	80	125	1,269	1,394	9						
New Orleans, La.	694	0.98	0.16	1.14	0.10	1.24	0.75	0.39	0.49	65	221	440	661	33						
Washington, D. C.	883	0.83	0.13	0.96	0.08	1.04	0.90	0.06	0.14	16	328	306	634	52						
Baltimore, Md.	912	0.95	0.13	1.08	0.10	1.18	0.96	0.13	0.23	24	983	389	1,372	72						
Philadelphia, Pa.	1,000	1.026	0.99	1.12	0.20	1.32	1.06	0.07	0.27	26	2,710	669	3,379	90						
St. Louis, Mo.	1,014	1.028	1.06	1.18	0.24	1.32	1.10	0.14	0.22	20	620	123	743	83						
New York, N. Y.	1,093	1.125	1.05	1.05	0.16	1.21	1.10	0.05	0.11	10	6,436	1,361	7,797	83						
Dallas, Tex.	1,124	1.099	1.54	1.19	1.73	0.81	1.20	0.53	0.61	61	10	314	324	3						
Cleveland, Ohio	1,154	1.103	1.22	1.18	1.40	0.81	1.25	0.15	0.23	18	879	79	958	92						
Chicago, Ill.	1,169	1.154	1.06	1.18	1.24	1.36	1.15	0.09	0.21	18	1,524	981	2,505	61						
Detroit, Mich.	1,169	1.178	1.22	1.18	1.40	1.32	1.30	0.10	0.22	17	1,158	92	1,250	93						
Boston, Mass.	1,320	1.331	1.26	0	1.26	1.36	1.35	0.09	0.01	1	1,898	210	2,108	90						
Denver, Colo.	1,788	1.862	2.03	0.22	2.25	2.25	1.86	0.40	0.40	22	79	95	174	45						
Los Angeles, Calif.	2,564	2.535	2.03	0.26	2.29	2.39	2.50	0.21	0.11	4	0	23	23	0						
San Francisco, Calif. 3/	2,969	2.879	2.03	0.26	2.29	2.39	2.86	0.56	0.46	16	1	3	4	25						
Portland, Oreg.	3,104	3.167	2.03	0.28	2.31	2.41	3.10	0.70	0.69	22	122	0	122	100						
Seattle, Wash.	3,282	3.218	2.03	0.28	2.31	2.41	3.35	1.04	0.94	28	168	0	168	100						

1/ Includes estimated proportion of mixed citrus carloads.

2/ Truck unloads adjusted to rail carlot equivalents.

3/ Includes Oakland, Calif.

Table 10.--Potatoes, Florida; Railroad and truck charges, per 100 pounds, and unloads at leading markets, 1952

Market	From Hastings, Florida										Unloads from the State of Florida									
	Railroad					Excess of rail over truck					Rates including refrigeration					Rail as				
	Mileage	Rate	Refrig. plus	Terminal: Total	Truck	Excluding	Including	Rate	Truck	Total	Per-	centage	of total	of total	unloads	Percent				
	Miles	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars				
Atlanta, Ga.	385	381	0.64	0	0.64	0.14	0.78	0.60	0.04	7	0.18	30	23	555	578	4				
New Orleans, La.	652	600	.93	0	.93	.10	1.03	.85	.08	9	.16	21	31	65	96	32				
Washington, D. C.	791	823	1.06	0	1.06	.10	1.16	1.00	.06	6	.16	16	61	32	93	56				
Baltimore, Md.	840	861	1.06	0	1.06	.10	1.16	1.00	.06	6	.16	16	110	163	273	40				
Philadelphia, Pa.	928	960	1.09	0	1.09	.20	1.29	1.10	-.01	-1	.19	17	390	349	739	53				
St. Louis, Mo.	962	982	1.15	0	1.15	.12	1.27	1.10	.05	5	.17	15	151	6	157	96				
New York, N. Y.	1,021	1,059	1.15	0	1.15	.20	1.35	1.20	-.05	-4	.15	15	487	284	771	63				
Dallas, Tex.	1,072	1,046	1.42	0	1.42	.10	1.52	1.30	.12	9	.22	17	10	36	48	21				
Cleveland, Ohio	1,194	1,037	1.20	0	1.20	.10	1.30	1.30	-.10	-8	0	0	216	8	224	96				
Chicago, Ill.	1,109	1,088	1.22	0	1.22	.15	1.37	1.15	.07	6	.22	19	458	18	476	96				
Detroit, Mich.	1,109	1,112	1.23	0	1.23	.15	1.38	1.30	-.07	-5	.06	6	432	17	449	96				
Boston, Mass.	1,248	1,265	1.23	0	1.23	.12	1.35	1.35	-.12	-9	0	0	221	16	237	93				
Denver, Colo.	1,736	1,800	1.85	0	1.85	.10	1.95	1.85	0	0	0	0	16	6	21	78				
Los Angeles, Calif.	2,512	2,482	1.85	0	1.85	.10	1.95	2.50	-.65	-26	-.55	-22	50	0	50	100				
San Francisco, Calif.	2,917	2,825	1.85	0	1.85	.12	1.97	2.85	-1.00	-35	-.86	-31	35	0	35	100				
Portland, Ore.	3,052	3,105	1.85	0	1.85	.11	1.96	3.35	-1.50	-45	-1.39	-41	38	0	38	100				
Seattle, Wash.	3,230	3,156	1.85	0	1.85	.12	1.97	3.35	-1.50	-45	-1.38	-41	76	0	76	100				

1/ Truck unloads adjusted to rail carlot equivalents.

2/ Includes Oakland, Calif.

Table 11.--Tomatoes, Florida: Railroad and truck charges, per 100 pounds, and unloads at leading markets, 1952

Market	From Belle Glade, Florida										Unloads from the State of Florida									
	Railroad					Excess of rail over truck					Rail					Truck				
	Miles	Dollars	Rate	Refrig- plus	Terminal; Total	Truck	Excluding	Including	Refrigeration	Truck	Truck	Truck	Truck	Truck	Truck	Truck	Truck	Truck	Truck	Truck
				eration;refrig-;cost			carriage	carriage												
				charges;ration;charges			Rate	Rate	Per-											
				charges					centage											
	Miles	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Percent	Dollars	Percent	Dollars	Percent	Dollars	Percent	Dollars	Percent	Dollars	Percent	Dollars
Atlanta, Ga.	608	1.20	0.15	1.85	0.14	1.49	1.11	0.24	22	0.38	34	11	836	847	1	836	847	1	836	847
New Orleans, La.	834	1.46	0.16	1.62	0.14	1.76	1.67	-0.05	-3	.09	5	9	261	270	3	261	270	3	261	270
Washington, D. C.	1,042	1.070	0.17	1.74	0.14	1.88	1.67	-0.07	4	.21	13	41	88	129	32	88	129	32	88	129
Baltimore, Md.	1,091	1.108	0.17	1.76	0.14	1.90	1.67	.09	5	.23	14	368	226	594	62	226	594	62	226	594
St. Louis, Mo.	1,169	1.207	0.17	1.82	0.17	1.99	1.94	-0.12	-6	.06	3	82	76	158	52	76	158	52	76	158
Philadelphia, Pa.	1,179	1.204	0.17	1.80	0.28	2.08	1.81	-0.01	-1	.27	15	808	311	1,119	72	311	1,119	72	311	1,119
New York, N. Y.	1,272	1.306	0.17	1.84	0.28	2.12	1.94	-0.10	-5	.18	9	2,061	1,182	3,233	63	1,182	3,233	63	1,182	3,233
Dallas, Tex.	1,279	1.261	0.04	1.7	0.21	2.35	2.08	.13	6	.27	13	21	28	49	43	21	28	49	43	21
Cleveland, Ohio	1,317	1.284	0.17	1.89	0.14	2.03	2.08	-0.19	-9	.05	-2	85	10	95	89	85	10	95	89	85
Chicago, Ill.	1,332	1.333	0.17	1.90	0.17	2.07	2.08	-0.18	-9	.01	2	806	228	1,034	78	228	1,034	78	228	1,034
Detroit, Mich.	1,332	1.357	0.17	1.90	0.22	2.12	2.22	-0.32	-14	.10	-5	740	23	763	97	23	763	97	23	763
Boston, Mass.	1,499	1.612	0.17	1.96	0.28	2.24	2.22	-0.26	-12	.02	1	1,272	59	1,331	96	59	1,331	96	59	1,331
Denver, Colo.	1,943	2.024	0.38	2.56	0	2.56	3.61	-1.05	-29	.06	-29	48	18	66	73	18	66	73	18	66
Los Angeles, Calif.	2,719	2.697	0.38	2.57	0.14	2.71	4.03	-1.46	-36	.32	-33	14	19	33	42	19	33	42	19	33
San Francisco, Calif.	3,124	3.041	0.38	2.58	0.21	2.79	4.31	-1.73	-40	.52	-36	3	13	16	19	3	13	16	19	3
Portland, Oreg.	3,259	3.329	0.38	2.58	0.19	2.77	5.69	-3.11	-55	.92	-61	7	0	7	100	7	0	7	100	7
Seattle, Wash.	3,437	3.380	0.38	2.58	0.18	2.75	5.69	-3.11	-55	.93	-61	25	0	25	100	25	0	25	100	25

1/ Truck unloads adjusted to rail carlot equivalents.

2/ Less than 0.5 percent.

3/ Includes Oakland, Calif.

Library